PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2003-082581
(43)Date of publication of application : 19.03.2003

(51)Int.Cl. D06M 15/233
C11D 1/14
C11D 1/22
C11D 1/29
C11D 3/04
C11D 3/06
C11D 3/10
C11D 3/20
C11D 3/34
C11D 3/37
D06L 1/12
D06M 13/152

(21)Application number : 2002-096380
(22)Date of filing : 29.03.2002

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(30)Priority

Priority number	Priority date	Priority country
2001128114	25.04.2001	JP
2001193106	26.06.2001	JP

(54) TREATING AGENT FOR WASHING AND METHOD FOR WASHING FIBROUS PRODUCT BY USING THE SAME

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a treating agent for washing, bringing an allergen-reducing effect to a fibrous product without using a labor by attaching the agent with the fibrous product until next washing to inactivate the accumulated allergen, and enabling a continuous countermeasure for allergy, and a method for washing the fibrous product by using the same agent.
SOLUTION: This method for washing the fibrous product is provided by performing a treatment for adsorbing the treating agent for washing blended with an allergen-reducing component to the fibrous product in at least one process selected from after the washing process, during a rinsing process and after the rinsing process.

LEGAL STATUS

[Date of request for examination] 27.09.2004

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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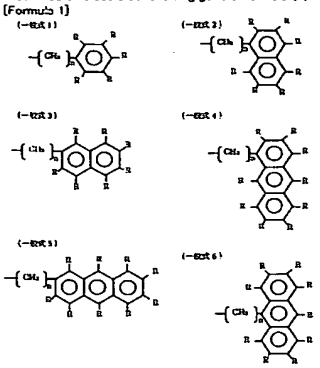
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The processing agent for wash characterized by coming to blend an allergen reduction-ized component.
[Claim 2] The processing agent for wash according to claim 1 to which an allergen reduction-ized component is characterized by being an aromatic series hydroxy compound.
[Claim 3] The processing agent for wash according to claim 2 characterized by an aromatic series hydroxy compound being a compound which has at least one shown in the side chain of a linear macromolecule at following general formula (1) - (6).
[Formula 1]



(R is hydrogen or a hydroxyl group, at least one shows a hydroxyl group, and n shows 0-5)
[Claim 4] The processing agent for wash according to claim 2 or 3 characterized for the monomer which has the phenolic group of the monomer in which an aromatic series hydroxy compound contains at least one shown in above-mentioned general formula (1) - (6), and/or monovalence by the polymerization or coming to copolymerize.
[Claim 5] The processing agent for wash given in claim 2 to which an aromatic series hydroxy compound is characterized by being an aromatic heterocycle type hydroxy compound - 4 any 1

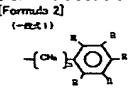
terms.
[Claim 6] The processing agent for wash according to claim 1 characterized by being at least one chosen from the group which an allergen reduction-ized component becomes from the carbonate of alkali metal, alum, a lauryl benzenesulfonic acid salt, a lauryl sulfate, and a polyoxyethylene lauryl ethereal sulfate salt.
[Claim 7] The processing agent for wash according to claim 1 characterized by consisting of phosphate, and a zinc sulfate and/or lead acetate.
[Claim 8] The wash approach of the textiles characterized by performing processing which makes textiles adsorb the processing agent for wash given in claim 1 - 6 any 1 terms in at least one process which rinses and is chosen after in process and a rinse process after a washing process.

[Translation done.]

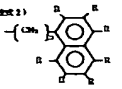
DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the processing agent for wash and the wash approach for textiles of giving the function which reduction-izes allergen, such as ticks and pollen, to textiles.
[0002]
[Description of the Prior Art] In recent years, many allergosis, such as atopic dermatitis, bronchial asthma, and allergic rhinitis, is posing a problem. The main cause is for the allergen (Der1, Der2) of inside nature Acari of a dwelling and many Chile Dani especially in house dust and much allergen, such as cedar pollen allergen (Cryj1, Cryj2) which mainly rages in spring, to increase in a life space. Even if especially Chile Dani's allergen exterminates Chile Dani who becomes the cause, the dead insect will supply the allergenic high matter to a life space further, and it does not result in fundamental solution of the allergosis from which allergen becomes a cause. Moreover, it is the glycoprotein of molecular weight abbreviation 40kDa, and Cryj2 is the glycoprotein of molecular weight abbreviation 37kDa, and if Cryj1 which is cedar pollen allergen adheres to the tunica mucosa nasi etc., it will be recognized as a foreign matter outside a living body, and will trigger an inflammatory response. Therefore, in order to prevent the decrudescence or the new sensitization of the allergosis, allergen is completely removed from a life space, or it is needed to denature allergen and to make it inactivate.
[0003] It is spraying the spray which made the tannic acid (JP,61-44821,A), the tea extract, etc. contain (JP,6-279273,A) as a cure against allergen to textiles, and the approach of inactivating allergen is indicated. However, it was what needs an effort very much to carry out a spray to textiles with a large area uniformly. As a cure against allergen to textiles, it is removal of the allergen by wash actually. Since water solubility of allergen is high, 99% of allergen can be removed by it being thought that wash is the very effective means of allergen removal, for example, washing a sheet, and it is reported that, as for the amount of Der1 of tick allergen, blankets and blankets also decrease in number 90% (indoor contamination, allergy, p121; Inoue Shoin). However, although most allergen is removable by wash, allergen will be rapidly accumulated in before a next wash. Although there were few problems every day when it could wash, there was a problem that a daily wash felt a pain [ground] for a blanket, a quilt cover, etc. by wash when an effort is applied.
[0004]
[Problem(s) to be Solved by the Invention] By inactivating the allergen contacted and accumulated in textiles before a next wash in view of the above-mentioned trouble, this invention brings about the ** allergen effectiveness, without applying an effort, and is to offer the wash approach of the textiles using the processing agent for wash and it whose continuous cure against allergy is attained.
[0005]
[Means for Solving the Problem] In order to attain the above-mentioned purpose -- this invention according to claim 1 -- allergen reduction -- the processing agent for wash characterized by coming to blend a degassed part is offered. moreover, this invention according

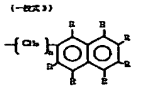
to claim 2 -- allergen reduction -- a degassed part offers the processing agent for wash according to claim 1 characterized by being an aromatic series hydroxy compound. Moreover, this invention according to claim 3 offers the processing agent for wash according to claim 2 characterized by an aromatic series hydroxy compound being a compound which has at least one shown in the side chain of a linear macromolecule at following general formula (1) - (6).
[Formula 2]
(一般式1)



(一般式2)



(一般式3)



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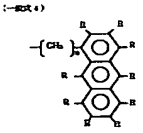

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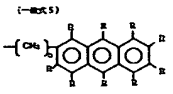

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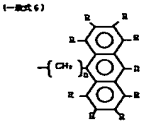
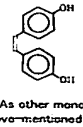


(R is hydrogen or a hydroxyl group, at least one shows a hydroxyl group, and n shows 0-5) This invention according to claim 4 offers the processing agent for wash according to claim 2 or 3 characterized for the monomer which has the phenolic group of the monomer in which an aromatic series hydroxy compound contains at least one shown in above-mentioned general formula (1) - (6), and/or monovalence by the polymerization or coming to copolymerize again. Moreover, this invention according to claim 5 is a processing agent for wash given in claim 2 to which an aromatic series hydroxy compound is characterized by being an aromatic heterocycle type hydroxy compound - 4 any 1 terms. moreover, this invention according to claim 6 -- allergen reduction -- a degassed part offers the processing agent for wash according to claim 1 characterized by being at least one chosen from the group which consists of the carbonate of alkali metal, alum, a lauryl benzenesulfonic acid salt, a lauryl sulfate, and a polyoxyethylene lauryl ethereal sulfate salt. Moreover, the processing agent for wash according to claim 1 characterized by this invention according to claim 7 consisting of phosphate, and a zinc sulfate end/or lead acetate is offered. Moreover, this invention according to claim 8 offers the wash approach of the textiles characterized by performing processing which makes textiles adsorb the processing agent for wash given in claim 1 - 6 any 1 terms in at least one process which rinses and is chosen after in process and a rinse process after a washing process.
[0006] the allergen reduction in this invention -- allergen is inactivated, as a degassed part, as long as it is the component which can control an antigen-antibody reaction, it is not limited especially and what kind of component may be used. for example, a hydroxybenzoic acid like tannic-acid, plant extract [like a catechin], 2, and 5-dihydroxybenzoic acid etc. is mentioned.

[0007] As the above-mentioned allergen reduction-ized component, it is desirable that it is an aromatic series hydroxy compound.
[0008] Especially as the above-mentioned aromatic series hydroxy compound, it is not limited but it is desirable that it is the compound which has at least one shown in the side chain of a linear macromolecule at above-mentioned general formula (1) - (6) from the point that there are few worries about the coloring to textiles especially.
[0009] The above-mentioned general formula (1) In the compound which has the functional group shown by - (6) in the side chain of a linear macromolecule, the number of n is 0-5. When 5 is exceeded, the effectiveness which uses a linear macromolecule may be lost. Moreover, if at least one of the R is a hydroxyl group and there is no hydroxyl group, it may be unable to demonstrate allergen reduction-ized effectiveness enough. Since coloring nature may become strong when there are too many hydroxyl groups, as for a hydroxyl group, one is desirable. Moreover, as for the location of a hydroxyl group, it is desirable that steric hindrance has combined with fewest parts, for example, it is desirable in a general formula (1) that it is in the para position.
[0010] The above-mentioned linear macromolecule means things, such as a vinyl polymerization object, polyester, and a polyamide, in synthetic macromolecule. Moreover, especially about the chemical bond of the functional group and linear macromolecule which are shown by above-mentioned general formula (1) - (6), it is not limited but carbon-carbon bonding, an ester bond, ether linkage, amide association, etc. are mentioned. The above-mentioned general formula (1) As a compound which has the functional group shown by - (6) in the side chain of a linear macromolecule, Pori 3 and 4, 5-hydroxybenzoic-acid vinyl, a polyvinyl phenol, the poly thyrosin, Pori (1-vinyl-5-hydroxy naphthalene), Pori (1-vinyl-6-hydroxy naphthalene), and Pori (1-vinyl-5-hydroxy anthracene) are desirable from safety or the ease of receiving, for example.
[0011] Moreover, a polymerization or the thing which it comes to copolymerize is desirable in the monomer which has the phenolic group of the monomer which contains at least one shown in above-mentioned general formula (1) - (6) as the above-mentioned aromatic series hydroxy compound, and/or monovalence.
[0012] 1 and 2-JI (4-hydroxyphenyl) ethene which will not be limited especially if it is the compound which the monomer which has the hydroxyl group of a piece has combined with the benzene ring more than the piece as a monomer which has the above-mentioned univalent phenolic group more than a piece, for example, is shown in a vinyl phenol, a thyrosin, and the following general formula 7 is mentioned. It is effective in being hard to discolor it compared with a polyhydric phenol, if an active principle has a univalent phenolic group.
[Formula 3]
(一般式7)

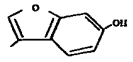


[0013] As other monomers by which copolymerization is carried out to the monomer which has the above-mentioned univalent phenolic group more than a piece, ethylene, acrylate, methacrylate, methyl methacrylate, hydroxyethyl methacrylate, hydroxyethyl acrylate, hydroxypropyl acrylate, hydroxypropyl methacrylate, styrene, etc. are mentioned.
[0014] Moreover, as the above-mentioned aromatic series hydroxy compound, it is desirable that it is an aromatic heterocycle type hydroxy compound.
[0015] Especially the above-mentioned aromatic heterocycle type hydroxy compound is not limited, for example, a 2-hydroxy furan, a 2-hydroxy thiophene, hydroxy benzofuran, a 3-hydroxy pyridine, etc. are mentioned Moreover, you may be a polymerization or the compound which it comes to copolymerize about the compound which contains an aromatic heterocycle type hydroxy group in the side chain of a linear macromolecule, and the monomer which has an aromatic heterocycle type hydroxy group

[0016] What the hydroxy group combined with heterocycle frames, such as a thiophene shown in the following general formulas 8 and 9 and a furan, as the above-mentioned aromatic heterocycle type hydroxy group, for example, the thing which the hydroxy group combined with the frame with the heterocycle shown in the following general formula 10 and an aromatic series ring, the thing which has a hydroxy group and an alkyl group (five or less carbon number) in a heterocycle frame, the thing which has a hydroxy group and an alkyl group (five or less carbon number) in a frame with heterocycle and aromatic series are mentioned.
[Formula 4]
(一般式8)

(一般式9)

(一般式10)



[0017] other allergen reduction used for this invention -- as a degassed part, a carbonate, alum, a lauryl benzenesulfonic acid salt, a lauryl sulfate, a polyoxyethylene lauryl ethereal sulfate salt and phosphate, and the zinc sulfate and/or lead acetate of alkali metal are preferably used from the point that there are few worries about the coloring to textiles etc.
[0018] As a carbonate of the above-mentioned alkali metal, the carbonate of the alkali metal of a lithium, sodium, a potassium, a rubidium, caesium, and a francium is mentioned, and they are a sodium carbonate and potassium carbonate preferably.
[0019] As the above-mentioned alum, the double salt which consists of a sulfate of univalent ion, such as alkali metal, and a thallium, ammonium, is mentioned. [an aluminum sulfate, and] Moreover, the double salt which transposed aluminum to chromium, iron, etc. is mentioned similarly. They are potassium aluminum sulfate and aluminium sodium sulfate preferably. Especially the high potassium aluminum sulfate of allergen reduction-ized capacity may be a partial hydrate in which a hydrate exists in the process in which a water molecule is lost gradually, although dodecahydrate (AlK(SO4) 2.12H2O) or an anhydride (AlK2 (SO4)) is mainly used. Since some alum is specified also as the food additive and the cosmetics raw material as potassium alum, its safety is high, it is used suitable for fiber etc., and it deals in it.
[0020] As a salt of the above-mentioned lauryl benzenesulfonic acid salt, a lauryl sulfate, and a polyoxyethylene lauryl ethereal sulfate salt, amine salts, such as metal salts, such as a lithium, sodium, a potassium, and magnesium, ammonium salt, and triethanolamine, are mentioned, and they are sodium salt and a triethanolamine salt especially preferably.
[0021] As the above-mentioned phosphate, when it dissolves in a drainage system solvent, a potassium dihydrogenphosphate etc. is mentioned other than a sodium dihydrogenphosphate (phosphoric-acid 1 sodium) which points out the salts which generate PO43-ion, for example, was used for the example, and disodium hydrogenphosphate (phosphoric-acid disodium).
[0022] As the above-mentioned zinc sulfate, although a hydrate (seven hydrates) or an anhydride is mainly used, a hydrate may be a partial hydrate which exists in the process in which a water molecule is lost gradually. From ancient times, more, the zinc sulfate is known as white **** or a zinc white, and adoption is carried out also to the Japanese pharmacopoeia. Moreover, it is a food additive, and since it is added by mother's milk substitutional food for the purpose of growth of people and supply of Zn which is a minute amount metallic element indispensable to health maintenance, safety is high, and it is used suitable for fiber etc., and gets
[0023] The above-mentioned lead acetate may be a partial hydrate in which a hydrate exists in

the process in which a water molecule is lost gradually, although a hydrate (three hydrates) or an anhydride is used. From ancient times, more, the above-mentioned lead acetate is known as sugar of lead, and adoption is carried out also to the Japanese pharmacopoeia.
[0024] In addition -- the processing agent for wash of this invention -- the above-mentioned allergen reduction -- a degassed part may be blended or more combining two that what is necessary is to just be contained as at least one active principle.
[0025] It is desirable to be blended at 0.01 - 30% of the weight of a rate to the solution with which the processing agent for wash is supplied as an amount with which an allergen reduction-ized component is blended. It is 0.05 - 20% of the weight of a rate still more preferably. If it is less than 0.01 % of the weight, and it may become difficult to demonstrate the allergen reduction-ized effectiveness of textiles and it exceeds 30 % of the weight, the fall of the physical-properties top of the textiles after processing or tactile feeling is caused, or omission from textiles etc. become easy, dirt of the circumference by the omission object is seen, and the need for cleaning may come out.
[0026] The binder may be blended with the processing agent for wash of this invention in order to raise adsorption power with textiles, as the above-mentioned binder -- allergen reduction -- if a degassed part can be adsorbed on a textiles front face, as a binder which is not limited especially, for example, consists of synthetic resin, urethane resin, acrylic resin, urethane acrylate resin, polyester resin, an unsaturated polyester resin, an alkyd resin, vinyl acetate resin, vinyl chloride resin, an epoxy resin, epoxy acrylate resin, etc. will be mentioned. In the case of a liquid condition, a binder may be used in the condition as it is, or may add a solvent. As the above-mentioned solvent, water, alcohols (methyl alcohol, ethyl alcohol, propyl alcohol, etc.), ether (diethylether, a tetrahydrofuran, dioxane, etc.), ketones, and amides (an acetone, methyl ethyl ketone, etc.) (N,N-dimethylformamide etc.) are mentioned. Water and alcohol are preferably used from the point referred to as inside or being able to process safely [in home] and easily simple. In the case of a solid state, you may use it in the condition of having dissolved or distributed to the above-mentioned solvent. Moreover, the above-mentioned solvent and a binder may be used independently, and may use two or more sorts together.
[0027] The hygroscopic additive may be blended with the processing agent for wash of this invention so that allergen reduction-ized effectiveness can be demonstrated also in the condition that the humidity in air is low. As the above-mentioned hygroscopic additive, polymer acids, such as polymer salts, such as polyalcohols, such as polyethers, such as a polyethylene glycol, a polypropylene glycol, and polyoxymethylene, and polyvinyl alcohol, and a sodium polyacrylate salt, and polyacrylic acid, etc. are used.
[0028] In the range which does not check the effectiveness of allergen reduction-ized effectiveness, a softening agent, a fluorescence agent, a bleaching agent, an antioxidant, an ultraviolet ray absorbent, miticide, the germicide, the antifungal agent, the deodorant, etc. may be blended with the processing agent for wash of this invention.
[0029] the processing agent for wash of this invention -- allergen reduction -- you may be in the condition that the compound of others, such as a degassed part and a binder, and a hygroscopic additive, was beforehand dissolved or distributed by the solvent. wash -- service water -- it is for being easy too much and raising the solubility to service water, or dispersibility. as the above-mentioned solvent -- allergen reduction -- especially if a degassed part, a binder, a hygroscopic additive, and other compounding agents can be dissolved or distributed, it will not be limited, for example, water, alcohols (methyl alcohol, ethyl alcohol, propyl alcohol, etc.), ether (diethylether, a tetrahydrofuran, dioxane, etc.), ketones, and amides (an acetone, methyl ethyl ketone, etc.) (N,N-dimethylformamide etc.) are mentioned. Water and alcohol are preferably used from the point referred to as inside or being able to process safely [in home] and easily simple.
[0030] as the processing agent for wash of this invention -- the above-mentioned allergen reduction -- the solvent was made to dissolve or distribute beforehand two or more sorts in a degassed part, a binder, a hygroscopic additive, and other compounds -- thing preparation can be carried out and it can also be used.
[0031] in addition, the allergen reduction used by this invention -- vegetable allergen, such as animal allergen and pollen, is mentioned as target allergen [part / degassed]. The allergen

reduction-ized component of this invention reduction-ized allergen of the location which used this agent by suppressing a reaction with the specific antibody of such allergen. As animal allergen with especially effectiveness, it is the allergen (it is the living thing of Acari and Arthropods 1 Arachnida-Acarina, and mainly divided into seven suborders.) of Acari. The back spiracle represented by reed NAGADANI, four spiracles represented by KATADANI, the Yamato tick, The posterior spiracle represented by TSUBAMEHIMEDANI, a house dust mite, a spiracle white tin mesa SHIDANI representation is carried out, epneustic [which is represented by the front spiracle represented by stag beetle pawl ticks and NAMAHOKORIDANI, the Tyrophagus putrescentiae, and Dermatophagoides farinae], IESASARADANI, and KAZARI -- a sickin, although it can be applicable by any classes, such as ****** represented by ticks Among house dust, on especially bedding and effectiveness is especially in the department of Chibe Dani and Epidermoptidae leading to the allergosis.
[0032] In at least one process which rinses and is chosen after in process and a rinse process after a washing process, it is also one of this inventions to perform processing to which the above-mentioned processing agent for wash is made to stick to textiles.
[0033] A washing process means the process aiming at removing the dirt which adhered to textiles using the cleaning agent in wash usually performed. In addition, in wash which does not use a cleaning agent, the thing of the process aiming at the same effectiveness is said. After the allergen accumulated before wash was removed, it considered as the washing process back for processing by the processing agent for wash. the allergen reduction blended with the processing agent for wash by this -- the degassed amount used can be lessened. A rinse process means the thing of a process which supplies water to laundry sink etc., flushes a cleaning agent and dirt, and reduces the amount of survival to textiles. It rinses and considered as the rinse process back in process or for making the processing agent for wash stick to textiles more effectively.
[0034] as the approach of making the processing agent for wash sticking to textiles -- a rinse of for example, an automatic washing machine -- the approach of supplying the processing agent for wash in process, and a rinse after carrying out manual rubbing for cleaning -- in process, the approach of carrying out fixed time-amount immersion, etc. are mentioned to the approach of supplying the processing agent for wash after a rinse process, and the tank in which the processing agent for wash was supplied after the rinse process.
[0035] The wash approach of this invention can be performed to any textiles, and is not especially limited as textiles by which the processing agent for wash of this invention is processed.
[0036]
[Embodiment of the Invention] Although an example is given to below and this invention is further explained to a detail, this invention is not limited only to these examples.
[0037] (Example 1) a commercial home automatic washing machine -- amount of water -- it adjusted so that it might be set to 20L, and the cloth (30cmx20cm) made from PET (polyethylene terephthalate) was put in into it, the home wash cleaning agent (Kao Corp. make; attack) was thrown in and washed, and the process was performed. that the 2nd rinse process begins between two rinse processes for 5 minutes, simultaneously allergen reduction -- the processing agent for wash which consists of 100g of potassium aluminum sulfate as a degassed part was supplied, and cloth was dried after dehydration.
[0038] (Example 2) a commercial home automatic washing machine -- amount of water -- it adjusted so that it might be set to 20L, and the cloth made from PET (30cmx20cm) was put in into it, the home wash cleaning agent (Kao Corp. make; attack) was thrown in and washed, and the process, the rinse process, and the dehydration process were performed. then, a tank -- water 1L -- pouring -- allergen reduction -- after adding the processing agent for wash which dissolved Polly 4-vinyl phenol (Aldrich make) 30g of weight average molecular weight (Mw) 8,000 in ethanol 270g as a degassed part and agitating to homogeneity, the above-mentioned cloth was immersed for 5 minutes, and cloth was dried after that.
[0039] (Example 3) a commercial home automatic washing machine -- amount of water -- it adjusted so that it might be set to 20L, and the cloth made from PET (30cmx20cm) was put in into it, the home wash cleaning agent (Kao Corp. make; attack) was thrown in and washed, and

the process, the rinse process, and the dehydration process were performed. then, a tank -- water 1L -- pouring -- allergen reduction -- after adding the processing agent for wash which dissolved polyethylene-glycol 20g in ethanol 160g as a degassed part as Polly 4-vinyl phenol (Aldrich make) 20g of weight average molecular weight (Mw) 20,000, and a hygroscopic additive and agitating to homogeneity, the above-mentioned cloth was immersed for 5 minutes, and cloth was dried after that.
[0040] (Example 1 of a comparison) Cloth was washed like the example 1 except having not supplied the processing agent for wash.
[0041] (Example 2 of a comparison) Cloth was washed like the example 2 except not having been immersed in the processing agent for wash.
[0042] (Example 3 of a comparison) Cloth was washed like the example 3 except not having been immersed in the processing agent for wash.
[0043] the processing cloth obtained in the [allergen reduction-ized evaluation] examples 1-3 and the examples 1-3 of a comparison -- sieve ****** allergen content dust dust (Der210microg/g) 50mg was rubbed against homogeneity by medicine SAJI by the screen of a mesh 200 from house dust at processing face side one side, respectively.
the constant temperature of [evaluation approach] 37 degree C and 90%R.H. -- the constant temperature of a constant humidity chamber (examples 1 and 2 and examples 1 and 2 of a comparison) or 25 degrees C, and 75%R.H. -- after 8-hour neglect and an allergen judging kit "a tick scan" (the Asahi Breweries chemical company make) were used for the constant humidity chamber (an example 3 and example 3 of a comparison) for the above-mentioned processing cloth for evaluation, and it measured allergenic. The judgment followed the directions for use of a "tick scan." A result is shown in Table 1. The criterion of a tick scan is as follows 1.. There is no contamination of tick allergen (test line T= 0).
2 .. It is polluted a little with tick allergen (T<C control line).
3 .. It is polluted with tick allergen (T=C).
4 .. It is polluted very much (T>C)
[0044]
[Table 1]

	実施例			比較例		
	1	2	3	1	2	3
評価	1	1	1	4	4	4

[0045]
[Effect of the Invention] using the processing agent for wash of this invention at the time of wash -- a home -- setting -- simple -- textiles -- allergen reduction -- a degassed part can be made to adsorb The textiles processed by the processing agent for wash can inactivate the allergen adhering to textiles during the time of the next wash after the washing process according [the wash approach of this invention] to a cleaning agent -- allergen reduction -- since the allergen accumulated in textiles before wash by processing by the processing agent for wash with which a degassed part was blended is removed -- allergen reduction -- the degassed amount used can inactivate allergen at least.

[Translation done]